Chapter 8
Emergency Department and Hospital-Based Interventions

Joel A. Fein

> Emergency room doctors speak out on South California gun violence
>
> By Thomas Curwen
> August 19, 2013. *Los Angeles Times*

8.1 Introduction

Medical centers, particularly emergency departments (EDs), are frequent touchpoints for children and youth exposed to violence in their homes, schools, and communities. Many circumstances place children at risk for firearm injury, and these circumstances vary with age. Young children encountering a firearm in the home can lead to tragic consequences and severe injury or death, whereas older children and adolescents are more at risk for intentional use of a firearm to harm either themselves or others. It is also important to realize that youth age 15–24 years old actually have the highest rate of unintentional firearm deaths, at a rate three times higher than children 5–14 years old. There are antecedents of injury that can be identified during a medical encounter, such as the access to firearms, depression and suicidality, and brewing issues of revenge and retaliation that may offer medical personnel a chance to intervene before severe injury or death. This chapter will describe ED and hospital-based assessment and intervention for youth at risk of firearm injury and will focus on limiting access to firearms, preventing suicide, and reducing the incidence and impact of assaults from peer violence. National medical organizations, including the American Academy of Pediatrics (AAP), the National Academy of Medicine (NAM), the American College of Surgeons (ACS), and the American Medical Association (AMA), have recommended that hospitals utilize a public health approach to incorporate violence prevention into standard practice.

J. A. Fein (✉)
Department of Pediatrics, Children's Hospital of Philadelphia at the University of Pennsylvania School of Medicine, Philadelphia, PA, USA
e-mail: fein@email.chop.edu

L. K. Lee, E. W. Fleegler (eds.), *Pediatric Firearm Injuries and Fatalities*,
https://doi.org/10.1007/978-3-030-62245-9_8

In addition to being a frequent touchpoint for youth at risk for firearm violence, medical venues are also relatively "neutral" locations that have the potential to engender trust and build safe linkages to specific interventions. Hospital-based medical clinicians often have access to in-house social service and mental health resources with whom they can connect patients and families. Many hospital systems have established partnerships with community organizations, schools, and other municipal agencies that can promote recovery plans for at-risk youth. It is encouraging that these health-care systems have recognized the vital importance of addressing social determinants of health as part of their mission, with violence prevention and firearm safety as part of that puzzle.

8.2 What Can We Do? A Trauma-Informed Approach

Preventing firearm injury requires a multidisciplinary approach applying a public health model to develop, test, and implement discrete interventions. These efforts are most effective if they are grounded within a trauma-informed care delivery system that mitigates the power dynamic inherent in the clinician-patient relationship and builds the trust needed to create rapid, meaningful connections. Hospital-based clinicians who are versed in the concepts of implicit and explicit bias and understand how prior experiences and traumas shape the way that patients and families experience and react to medical interventions are best poised to initiate and integrate the interventions mentioned in this chapter. Examples of behaviors that put traumatized patients and families more at ease include reducing the perceptions of blame for the injury, safely allowing control at certain medical decision points, and providing clear and nonjudgmental communication about what will transpire during the hospital visit. Despite being a "neutral" venue, the hospital is still quite a foreign, and often threatening, representation of authority. Implementing shared decision-making whenever possible can go a long way toward patient engagement in helpful assessments and referrals.

Medical professionals are accustomed to team-based approaches to care, and these often involve the process of "identify, assess, treat, and refer." Some resources, such as general education about gun safety and suicide hotline information, can be offered universally and do not require more information from the patient and family. Others, such as asking about access to weapons – the strongest risk factor for all types of firearm violence in children – require a sensitivity to patient perceptions of privacy and legal considerations.

8.3 Identification, Assessment, and Interventions for Violence and Firearm Injury

As hospitals have successfully integrated screening for social determinants of health into routine clinical care, clinicians are being trained to assess the risk of child maltreatment, suicide, and intimate partner violence. Instruments used for assessing the risk of firearm access, suicide, and peer violence all contain direct and pointed questions requiring clinicians to introduce concepts of privacy in order to enhance the patients' comfort in responding to these questions. For childhood witnesses to violence and for assault-injured youth in particular, it is also essential not only to heal their external wounds but also to evaluate the potential psychological impact of the event. Posttraumatic stress symptoms (PTSS) are very common after violent injury, and these symptoms can persist over months for a substantial proportion of these youth. It is important to recognize the severity of the injury does not always correlate with the severity of PTS symptoms in children. Rather, the perception of life threat, the pain experienced during and after the event, and other factors may be more pertinent to the trajectory and persistence of these symptoms (please see Chap. 10 for further discussion).

Medical systems utilize a variety of strategies to deliver firearm safety and violence prevention interventions in busy clinical settings, including employing social workers, peer volunteers, and even tablet-based programs that do not require intensive on-site personnel. Technological solutions, such as computerized self-report screening processes, have been designed to ease the burden on clinicians. However, it is also important to introduce the potential to build trust and rapport in order to balance "high-tech" and "high-touch," so clinicians may want to review computerized screening results and discuss the findings with patients and families. It is important to note that each hospital or medical venue must assess its own resources that can be dedicated to prevention programming. Even with limited resources, a hospital or other health-care site can develop community partnerships that enhance and amplify the impact of screening and assessment.

8.3.1 Firearm Safety in the Home

Given our focus on health and safety, medical professionals are well positioned to address known household hazards, with firearms recognized as a clear danger for children and adolescents. If owners keep their firearms locked and unloaded and store the ammunition locked away separately, there is a significantly lower risk of both unintentional pediatric injury and adolescent suicide. In a 2006 study, only one-third of gun-owning parents in pediatric practices reported storing their firearm safely. A subsequent study found almost one-fifth of the respondents in three large

cities reported firearms in the home, but only 6% followed the full recommended safety procedures. Even more concerning, a recent study showed a substantial proportion of homes with children who had symptoms of mental illness, such as depression or suicidality, had firearms that were not stored safely.

Most clinicians believe firearm safety counseling is important and appropriate for their clinical role. However, they may feel unprepared or uncomfortable discussing firearm safety with families due to the lack of knowledge or the concern for offending a family or "prying." Fortunately, there are many resources available to help us accomplish this in a natural, comfortable way. The Massachusetts Medical Society has brochures available for families (http://www.massmed.org/firearmguidanceforpatients/) as well as guides for physicians (http://www.massmed.org/firearmguidanceforproviders/) (see Chap. 7).

More importantly, there is no existing law or code preventing clinicians from asking about firearms in the home or their patient's access to firearms, especially if there is a reason they are concerned about the health and welfare of their patient in that regard. Though Florida passed the Firearm Owners' Privacy Act, the firearm "physician gag law," in 2011 placing prohibitions on conversations related to guns, that law was overturned in 2017 (see Chap. 13). The AAP recommends physicians screen for access to firearms in patients at higher risk for injury, including those with mood disorders, a history of substance abuse, or concern for suicidality. In these situations, in particular there is a strong medical indication for the physician to help the family keep their children safe through inquiry about firearm access. In addition, regardless of gun ownership, all families can receive the benefit of gun safety education, including safe storage, tips on how to keep their children safe in the homes of friends or relatives, and safe disposal of firearms. Bright Futures recommends discussing guns in early childhood (age 3 years), middle childhood (age 9 and 10 years), and early adolescence visits (ages 11–14 years). A multicenter study in pediatric primary care found that firearm safety counseling, particularly if coupled with the provision of a free firearm safety device, can significantly increase safe storage behaviors in our patients' homes.

As with any risk behavior counseling, it is important to "meet the family where they are" and learn what steps they can take toward protecting their children from unwanted access to firearms. A home devoid of firearms is clearly the safest situation. If that is not possible, then safe storage practices include using firearm locks, trigger locks, and gun storage cabinets, in addition to removing ammunition from the weapon and storing it in a separate locked location. Because many adults consider the firearm as a means of protection, the conversation may need to address the relative risk of criminal behavior occurring in the home, from which the family requires protection, compared to the risk of unintentional harm or intentional harm, including suicide. However, statistics and numbers do not always counteract unbalanced fears. Having the family member themselves strategize about how they can make their child's environment incrementally safer is a critical first step toward that end.

Some medical sites have begun firearm safety device provision, either on location or in the community, with concomitant improvement of storage practices.

Although more research is needed, a meta-analysis of these types of interventions confirms that families employ safer storage of firearms in the months after receiving a safety device.

8.3.2 Suicide, Self-Harm, and Relationship Violence

It is well known that many patients who die by suicide have had recent contact with the medical system, providing a rationale for routine screening in various medical settings. One study showed nearly one-third of children 11 years and older who completed suicide had visited an ED in the month prior. In preventing firearm-related suicide in children and adolescents, there is a need for validated, brief tools that we can use in busy clinical settings. Medical facilities have incorporated screening tools for depression, such as two-question and nine-question Patient Health Questionnaire (PHQ). For suicide-specific questions, the Ask Suicide-Screening Questions (ASQ) uses four very direct questions about lifetime suicidality and one about current suicidality (Fig. 8.1). The National Institute of Mental Health website provides a clinical pathway designed by the American Academy of Child and Adolescent Psychiatry that helps clinicians incorporate this tool when assessing patients for suicide risk in the ED or hospital. It is freely available at https://www.nimh.nih.gov/research/research-conducted-at-nimh/asq-toolkit-materials/asq-tool/screening-tool_155867.pdf.

The Behavioral Health Screen-Emergency Department (BHS-ED©) assesses suicidality as well as many other risk and protective factors in a computerized, self-administered tool and has had strong acceptance by adolescents in the pediatric setting. Related to suicide risk, four questions are asked in regard to the past year and if the response is "yes," then the questions are asked in regard to the past week, including today: (1) Have you felt that life is not worth living? (2) Have you thought about killing yourself? (3) Did you make a plan to kill yourself? (4) Have you tried to kill yourself? A recent large prospective study through the Pediatric Emergency Care Applied Research Network (PECARN) developed a computerized adaptive screen for suicidal youth (CASSY). This screening tool demonstrated a specificity of 80% and sensitivity of 83% for the prediction of a suicide attempt during a 3-month follow-up period. Many of these brief screening tools are highly sensitive but have low specificity, leading to false positives. Some mental health professionals suggest positive responses to these brief measures be followed-up with longer, more formal assessment by mental health professionals using specific tools such as the Columbia Suicide Severity Rating Scale.

In addition to screening for depression and suicidal ideation, it is also prudent to ask teens about their romantic relationships. As firearms substantially increase the risk of death in situations of intimate partner violence, teens should be asked specifically about their perception of safety within those relationships. It is unfortunate that these relationships may involve emotional and physical violence. One study found approximately 7% of adolescent homicides involved an intimate partner, and

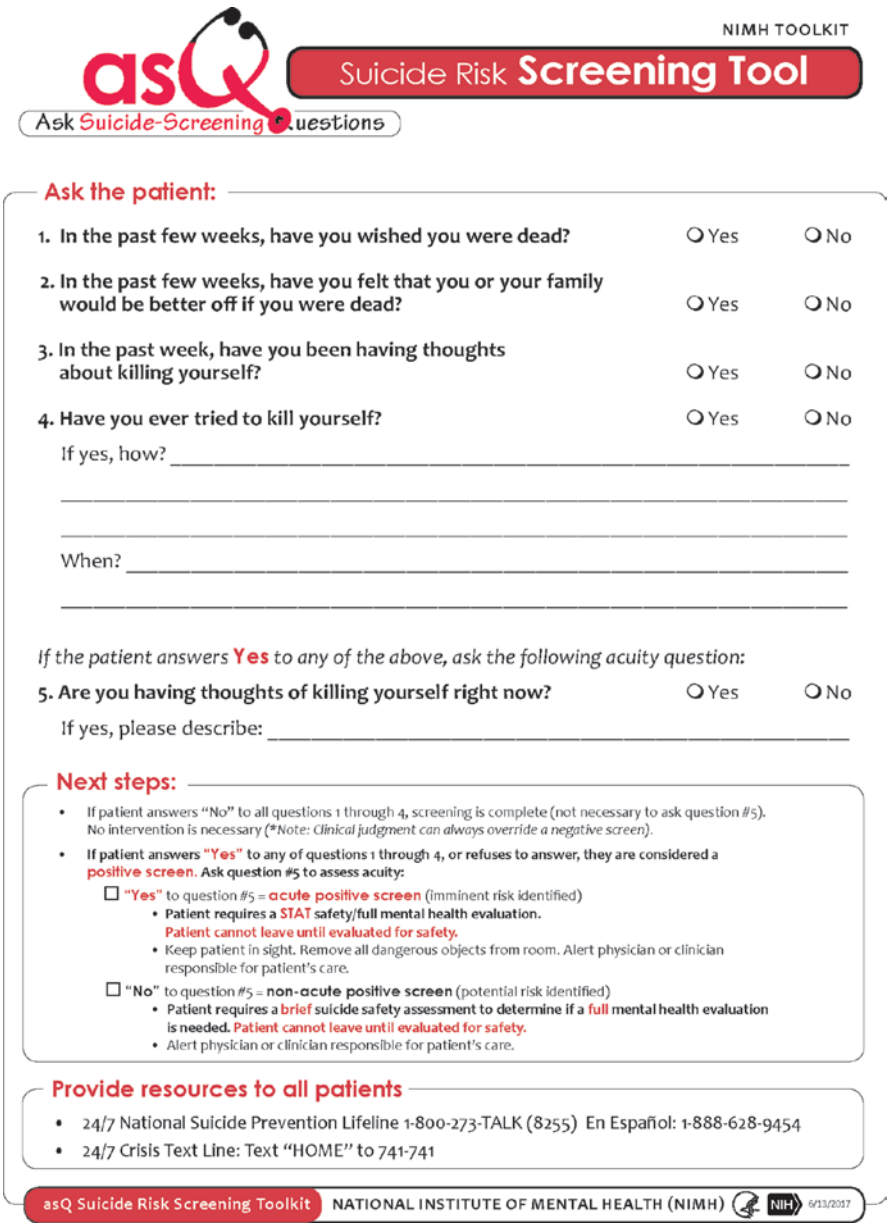

Fig. 8.1 The ASQ suicide screening questions (National Institute of Mental Health)

90% of these victims were female. In addition, young women are sometimes exploited to buy, conceal, store, and hold guns on behalf of men in their lives who are prohibited from purchasing firearms themselves. An organization in Boston known as "Operation LIPSTICK" (Ladies Involved in Putting a Stop to Inner-City Killings) works to educate women about these dangers.

Positive screens for suicidality and intimate partner violence require further a discussion with a clinician to clarify answers and determine the need for further mental health evaluation and treatment and for safety planning (see Chap. 9). Current suicidal thoughts require immediate attention by a mental health professional for safety assessment and potentially inpatient care for stabilization. For children with moderate or severe depression, referral for outpatient treatment, in communication with their primary care physician, should also include lethal means restriction counseling to ensure that there is no access to firearms in their environment. We also know that despite some logistical barriers, pediatric clinicians value the effort to address firearm access in their young patients and are willing to work with their administrators and medical leaders to establish this as a part of their routine practice.

8.3.3 Peer Violence

Assault injury is a common occurrence in school-age children. In 2015, the average rate of ED visits for assault was 267/100,000 patients. For 15–19-year-old teenagers, the rate was more than triple that amount. The average middle school has 600 10–14 year olds, suggesting at least a handful of the children in that school will seek medical care for an assault injury each year. Although rates vary based on age, location, and other risk factors, recent studies suggest that between 11% and 37% of ED patients treated for assault injuries will return to the ED for more serious injuries within 2 years, many within 6 months after the initial ED visit. An unfortunate number of these youth return with injuries involving firearms and other weapons. Each adolescent's visit to a medical facility is an opportunity to learn about and intercede regarding the risk of peer violence. Some programs, such as SafERteens and BHWorks, screen all youth for violence risk, while others utilize a visit due to a violent event as the rationale for assessment and intervention. For those who come to medical attention after a violent event, it is paramount to assess the safety of the patient before he or she leaves the hospital. Many youth will report that either they or other involved parties will continue the fight at the first opportunity. In addition, there are often family or friends of the involved parties who threaten to retaliate as a result of the altercation. Medical personnel, with support of social workers if available, can guide families during the immediate post-injury phase. By establishing the medical system as an ally rather than another traumatic experience, clinicians can potentially enhance connection to services after discharge.

First and foremost, we can allow the patient to tell the story of the event in their own words, as much as they feel comfortable doing. We do not want to force the narrative. Some patients can have increased posttraumatic stress symptoms as they

review the event, and others may respond more positively. Another task that can be guided by the hospital team is helping the patient and family report the incident to the police or school authorities as appropriate. This can accomplish a number of goals. Firstly, reporting an incident to police could decrease the likelihood that the child or family will retaliate for the assault, given the fact that they have "transferred" the responsibility to other authorities. That said, youth and family members may consider this reporting more dangerous than helpful by increasing the animosity between involved parties without the expectation of protection by police or the criminal justice system. Secondly, in order for families to receive reimbursement of some of the expenses related to the incident from the Victims' Compensation Assistance Program (VCAP), they need to report the incident to an "appropriate authority," which includes a law enforcement officer, district attorney, campus police, and other agencies. Aside from the medical care we provide, clinicians can also provide connection to community resources, as well as psychosocial support that addresses the emotional toll of the event. In light of this, parents should be encouraged to reach out to school counselors and primary care offices to learn about their options for their child to keep him or her safe, as well as the supportive resources available in communities and schools.

For youth who are seen for assault, various instruments are being developed and validated with the goal of assessing risk of revictimization or reinjury. One recently studied tool is the SaFETy score from the University of Michigan, which asks about *s*erious fighting, *f*riends' weapon carrying, *e*nvironmental exposure to gunshots, and direct *t*hreats with a firearm (Table 8.1). The Children's Hospital of Philadelphia three-item safety tool queries, as part of a comprehensive self-administered computerized questionnaire for adolescents, (1) if the youth feels that the altercation is over, (2) if they or someone they know may retaliate, and (3) if they planned to report the incident to police (as a protective factor against retaliation). The Violence Prevention Emergency Tool (VPET-3) is a seven-item questionnaire that similarly asks questions related to witnessing, crime, or fighting behavior. These questions are as follows: (1) Have you seen a person shoot another person with a real gun? (2) Have you been physically harmed by another person? (3) Have you been injured by someone? (4) Has an angry person chased you? (5) Have you injured someone? (6) Have you stolen anything, sold drugs, or destroyed property? (7) Have you failed a class?

Table 8.1 Items in the SaFETy score for predicting firearm injury risk

S (Serious fighting)	In the past 6 months, including today, how often did you get into a serious physical fight?
F (Friend weapon carrying)	How many of your friends have carried a knife, razor, or gun?
E (Community environment)	In the past 6 months, how often have you heard guns being shot?
T (Firearm threats)	How often, in the past 6 months, including today, has someone pulled a gun on you?

From: Goldstick et al.

Tools that have been validated in the primary care setting include the 5-item FiGHTS screening tool and the 14-item Violence, Injury Protection, and Risk Screen, which has also been validated to assess risk for cyber violence. The five questions of the FiGHTS tool are the following: (1) During the past 12 months, have you been in a physical fight? (2) Is your gender male? (3) During the past 12 months, have you been in a physical fight in which you were injured and had to be treated by a doctor or nurse? (4) During the past 12 months, have you been threatened or injured with a weapon such as a knife or gun on school property? (5) Have you ever smoked cigarettes regularly, that is, at least one cigarette every day for 30 days?

It should be noted that none of these tools provides a certain "score" above or below which the clinician would make a decision about further assessment or referral. However, they do provide important domains that are important to assess to guide that process. Additional efforts have begun to estimate a "risk of violent reinjury assessment" of youth who are seen after assaults; however, more research is needed to fully develop and implement this type of instrument in order to provide a more tailored approach to high-resource interventions.

Similar to those who may be at risk for alcohol or drug use, youth who are deemed at risk for fighting, and therefore, in the current climate, firearm injury, may benefit from brief, contained interventions using motivational interviewing (MI). When done in a nonconfrontational and nonjudgmental manner, MI can help these youth explore their desires to avoid or change risky behaviors. One example of this approach is SafERteens, a screening and 30-minute brief counseling intervention that has been shown to decrease violence and substance use behaviors among teens 14–18 years old who report recent fighting and alcohol use (see Table 8.2).

Table 8.2 Resources for youth violence prevention

Resource	Web site
The Health Alliance for Violence Intervention (HAVI)	www.the HAVI.org
Violence is Preventable: A Best Practices Guide for Launching & Sustaining a Hospital-based Program to Break the Cycle of Violence	www.ncjrs.gov/App/Publications/abstract.aspx?ID=260856
Reinjury Prevention for Youth Presenting with Violence Related Injuries: A Training Curriculum for Trauma Centers	www.stopyouthviolence.ucr.edu
American Academy of Pediatrics "Connected Kids Program: Safe, Strong, Secure"	www.aap.org
University of California at Davis "What Can You Do" Initiative	https://health.ucdavis.edu/what-you-can-do/
SafERteens Youth Violence Prevention Program	www.injurycenter.umich.edu/programs/saferteens
University of Michigan Injury Center "Parents' Guide to Home Firearm Safety"	www.injurycenter.umich.edu
The Center for Violence Prevention at Children's Hospital of Philadelphia	www.chop.edu/violence
Children's Hospital of Philadelphia "After the Injury"	www.aftertheinjury.org
The Society for Advancement of Violence and Injury research "Instrument Library"	https://savirweb.org/aws/SAVIR/pt/sp/instrument-library

Other health-care systems have developed hospital-based violence intervention programs (HVIP) that recruit participants from the hospital (see Chap. 11). These programs extend beyond the patient's initial medical encounter in order to provide or connect the patient directly to services after hospital discharge. Programs are funded through a variety of sources, including hospital operating budgets, philanthropic grants, public sector contracts, and reimbursement for services through Medicaid and Victim of Crime Assistance. HVIPs can either link the youth and family with a community-based organization that carries out the aftercare program or use their own staff members to meet clients and families in community settings. It is optimal for someone from the HVIP to initially meet the patients in the hospital setting to make the connection and mitigate any safety issues that may exist. However, because approximately 90% of youth who have already been injured in a violent event are discharged from the ED rather than admitted to the hospital, many of the clients are recruited after reviews of the medical record system or post-discharge referrals from physicians, nurses, and hospital-based social workers. During the intake process, the patients undergo a comprehensive psychosocial assessment that informs longer-term goals targeting physical and mental health, education, employment, criminal justice, peers, and family relationships. These areas are then addressed through subsequent case management services. In addition to the intensive system navigation guiding the patient and family through the aftermath of the violent event, many programs also provide other services. These include trauma-focused psychoeducation and direct mental health services including cognitive behavioral therapy, group therapy, or linkage to higher-level psychiatric care if needed. Although there is some variability in the way HVIPs deliver the intervention, they are all guided by the tenets of trauma-informed care as described above. Because retaliatory behaviors and reinjury are commonly reported by assault-injured youth and most often occur within the first weeks after the event, some hospital-based programs incorporate or collaborate with "violence interrupter" programs, such as Cure Violence, which employ street-based staff members to prevent retaliation and promote community healing.

HVIPs have been shown to improve mental health outcomes and results in less criminal justice involvement in youth who complete these programs. Studies in high-risk adult patients entering these programs demonstrate lower reinjury rates, decreased violent perpetration, and improved employment. In addition, several economic evaluations indicate these programs could generate substantial cost savings for health-care and criminal justice sectors. Despite these limitations, the Health Alliance for Violence Intervention (HAVI, formerly the National Network of Hospital-Based Violence Intervention Programs) has more than 42 member programs that share best practices and provide training and technical assistance to emerging programs (www.TheHAVI.org – see Table 8.2). The HAVI also promotes collaborative research in order to create more consistent outcome measures, increase

sample sizes, and promote fidelity within the interventions. The American College of Surgeons Committee on Trauma has developed guidelines requiring trauma centers to provide prevention programs addressing the most common causes of injury for their catchment population. Careful review of what may work, and more importantly what may potentially do harm, is a critical ingredient in the formulation of such programs.

Many health-care settings do not have the infrastructure to support a hospital-based violence prevention program. For those considering starting such a program, there is a resource monograph available through the National Criminal Justice Reference Service (Table 8.2). However, even when this is not a possibility, there are a growing number of community-based resources to support individual providers who are interested in improving the standard of care for violently injured patients. For example, patients who exhibit or report symptoms of traumatic stress, such as hypervigilance, re-experiencing the event, or intrusive thoughts, can be referred to evidence-based therapies such as trauma-focused cognitive behavioral therapy. These types of therapies can ameliorate these symptoms and bring the child closer to normal daily function. Brief psychoeducation, which allows patients and parents to better recognize developing traumatic stress symptoms and become more in tune with the body's physiologic reactions to these traumatic events, can also be delivered through brief conversations or even through web-delivered content. Other prevention programs and national organizations have developed online resources for physicians with interest in providing violence prevention services. The CDC has developed an online resource titled "Connecting the Dots: An Overview of the Links among Multiple Forms of Violence." (https://www.cdc.gov/violenceprevention/pdf/connecting_the_dots-a.pdf). The CDC has also created a compendium of screening and assessment tools to measure violence-related behaviors, as well as an overview of methods for evaluating youth violence prevention programs.

It is worth noting almost all the research on prevention strategies emphasizing scare tactics, such as trauma bay or morgue tours, suggest these "scared safe" programs are not recommended as a universal intervention for children and teens. One study, published from a hospital-based program, demonstrated some of the youth in the program improved their attitudes toward violence. However, this study suffered from small sample size, selection bias, and a lack of follow-up regarding the persistence of effect or the potential negative emotional or psychological impact of the youth were experiencing. Of note, a Cochrane review of these programs suggest they are ineffective at reducing overall violence risk and in fact are more harmful than helpful for delinquency outcomes.

Finally, a comprehensive dialogue regarding the health system's role in firearm violence prevention can be found in the proceedings of a 2019 National Academy of Science, Engineering and Medicine workshop. This report offers insight into the epidemiology, risk and protective factors, and current health system-based interventions. Many of these have been similarly described in this chapter.

8.3.4 Summary of Important Aspects of Screening and Intervention for Providers in the ED or Hospital Setting

1. ED screening
   (a) Self-harm or suicidality
   (b) Relationship violence and intimate partner violence (IPV) exposure
   (c) Firearm access or exposure
2. ED-based interventions
   (a) Transparency regarding limits of confidentiality
   (b) Discussion of means restriction and harm reduction practices for firearm access
   (c) Motivational interviewing (MI) and counseling by hospital staff or on-site community-based personnel
   (d) Involvement of social workers if needed
3. Hospital-based interventions
   (a) Initiation of community-based services through hospital-based violence intervention program (HVIP)
   (b) Training in trauma-informed approaches to patients and families exposed to violence
   (c) Partnerships increasing communication with primary care providers, schools, and other support networks
   (d) Support from hospital administration for educational initiatives that promote violence prevention policy efforts

8.4 Conclusions

Firearm injury, whether unintentional or intentional, is tragic and life-changing and as witnessed by health-care providers has motivated them to intervene. The issue is clearly "in our lane," and we are all obligated to address it using all our capacity and resources. Clinicians can often identify situations heralding impending firearm injury, such as unsafely stored weapons, depression and suicidality, and lower-level peer violence. This provides us the opportunity, at various touchpoints, to screen for risk and protective factors and apply assorted interventions in the health-care setting that can reduce or even remove these tragic events from our patients' lived experiences.

Take Home Points

- Medical centers are frequent, neutral touchpoints for children and youth at risk for experiencing or being exposed to violence, which affords an opportunity to intervene.
- Trauma-informed approaches, which include reducing blame and increasing control for patients and families, optimize the potential for successful interventions.
- "Locked and loaded" is only half of the story for child safety – locked, unloaded, and locked ammunition stored separately is the best option short of keeping the firearm out of the home entirely.
- Routine inquiry about suicidality, intimate partner violence (IPV), and firearm carrying/access is best if done universally, to avoid perceptions of "profiling" or stigma.
- Violence prevention programs which rely on scare tactics or require considerable exposure to others' traumatic experiences are not recommended as violence prevention strategies.
- Hospital-Based Violence Intervention Programs (HVIPs) are gaining in popularity but require significant investments and strong partnerships with community services to be effective.

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